



RESISTOR NETWORK

■ Scope

Thick Film Resistor Network is made by Printing and Firing the Metal Glaze on High Alumina Content Ceramic Substrates, then Trimmed by Laser Trimmer to Achieve the desired Resistance.
Lead Frame Assembled and Coated with High Grade Epoxy.

■ Features

- Miniature in Size, Applicable on High Density PCB Assembly.
- Variable Resistors Connection Resulted in Various Applications.
- Conformal Quality Performance and Excellent Reliability.
- High Accuracy and Low T.C.R.

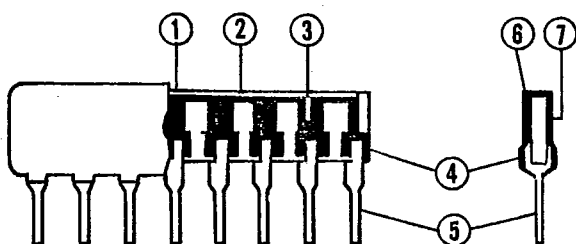
■ Circuit Configurations

- Line Terminating Resistors.
- Attenuator Circuits.
- Ladder Circuits
- Thevenin Terminal.
- Multiple- Isolated Resistors.
- Translator- Network (TTL-ECL and CMOS-ECL)
- Interface- Based Configurations.
- Flip- Flop Circuit.
- Pullup- Pulldown Resistors
- LED Current Limiting

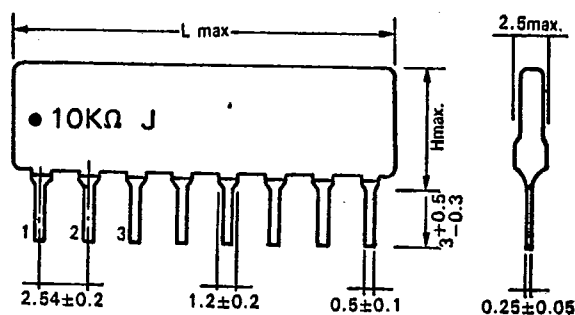
■ Physical Dimensions

| Type | Pins | Length L | Height H |
|------|------|----------|----------|
| RNL | 4-14 | 2.54 | 5.0 |

■ Construction and Material



UNIT: mm



| item | Descriptions | Material |
|------|-------------------|-------------------|
| 1 | Ceramic Substrate | 96% Alumina |
| 2 | Conductive Paste | Ag-Pd Metal Glaze |
| 3 | Resistive Paste | Metal Glaze |
| 4 | Solder Joint | Solder |
| 5 | Lead Frame | Tin-Plated Strip |
| 6 | Overcoating | Epoxy |
| 7 | Marking | Ink-white |

■ Ratings

| Descriptions | Ratings |
|---------------------------------------|---------------------|
| Pins Availability | 4-14 Pins |
| Per-Resistor rated Power | 0.125 W |
| Nominal Resistance Range | 10 ohm-1 Mohm |
| Nominal Resistance Tolerance | +/-1%, 2%, 5% |
| Temperature Coefficient of Resistance | +/-100, 200 ppm |
| Maximum Working Voltage | 100 V |
| Maximum Overload Voltage | 150 V |
| Operating Temperature Range | -40 to +150 Deg.s C |
| Rated Ambient Temperature | 70 Deg.s C |

■ Characteristics

| Test Item | Performance | Test Method JIS C 5202 |
|------------------------|--------------------|--------------------------|
| Insulation Resistance | Over 10.000 Mohm | 5.2B |
| Short-time Overload | +-(0.5%+0.05 ohm) | 5.5 E rated*2.5 @ 5 s |
| Dielectric Strength | +-(0.5%+0.05 ohm) | 5.7F 500V @ 1 min. |
| Lead Strength-Tensile | +-(0.5%+0.05 ohm) | 6.1(1) 1 Kg @ 10 s. |
| Lead Strength-Bend | Stand 3 Times min. | 6.1(4) 250g |
| Soldering Heat | +-(0.5%+0.05 ohm) | 6.4 260 Deg.s C @ 10 s |
| Solderability | Coverage 90% min. | 6.5 230 Deg.s C @ 3 s |
| Dry Heat | +-(1.0%+0.05 ohm) | 7.2 125 Deg.s C @ 100 H |
| Temperature Cycling | +-(1.0%+0.05 ohm) | 7.4 -40/+85 Deg.s C |
| Endurance (Damp Heat) | +-(5.0%+0.05 ohm) | 7.9 40°C/95%RH @ 1000 H |
| Endurance (Rated Load) | +-(5.0%+0.05 ohm) | 7.10 70 Deg.s C @ 1000 H |

■ Circuit Configurations— Typical

| A Type | B Type | C Type |
|---|--|---|
| | | |
| $R1=R2=R3=Rn$ | $R1=R2=R3=Rn$ | $R1=R2=R3=Rn$ |
| D Type | E Type | R Type |
| | | |
| $R1=R2=R3=Rn-1$ or $R1=R3=Rn-1$ or $R2=R4=Rn$ | $R1=R2=R3=Rn$ | $R1=R3=Rn-1$ $R2=R4=Rn$ |
| P Type | S Type | T Type |
| | | |
| $R1=R2=R3=Rn$ | $R2=2R1$ $R1=R3=Rn-2$ $R2=R4=Rn$ | $R1=R2=R3=Rn-1$ or $R1=R3=Rn-1$ $R2=R4=Rn$ |

※ Different R, Different Configurations are Available upon Request.